

REMARKS/ARGUMENTS

Re-examination and favorable reconsideration in light of the following comments are respectfully requested.

Claims 1 - 33 are pending in the application. Claims 1 - 23, 28 and 29 stand rejected; and claims 24 - 27 and 30 - 33 have been withdrawn from consideration.

In the office action mailed January 25, 2007, claims 15 - 23 were rejected under 35 U.S.C. 103 as being unpatentable over U.S. Patent No. 6,042,898 to Burns et al.; and claims 1 - 14, 28, and 29 were rejected under 35 U.S.C. 103(a) as being unpatentable over Burns in view of JP 6219810 or JP 2003027209.

The foregoing rejections are traversed by the instant response.

With regard to the rejection of claims 15 - 23 on obviousness grounds over Burns et al., the rejection is not well founded and is not even properly made. Applicants have found that cleaning of the diffusion heat treatment environment plays a significant role in coating ductility and the coating's final quality acceptability. As noted in paragraph 0015 of the specification, previous practice within the coating industry to correct a contaminated furnace has been to ensure the furnace is adequately free from vacuum leaks and perform a vacuum burn out heat treat cycle a few hundred degrees higher than the highest temperature production heat treat cycle previously used within the furnace. Applicants have found that this still leads to the production of less than desirable coatings.

Applicants have found that improved coatings can be obtained begins with cleaning a furnace to be used in the diffusion heat treatment using a heat treat cycle with a gas being injected at the center of the work piece location area. It is this aspect of the claimed invention which is neither taught nor suggested in Burns et al.

Claim 15 is allowable because Burns et al. does not teach or suggest the step of "diffusion heat treating said at least one workpiece in gas atmosphere within a furnace with said gas being injected at a workpiece center location."

The Examiner contends that cleaning the workpiece at any step is contemplated within ambit of ordinary skill artisan when the workpiece is contaminated. Even if this statement were true, it does not address the method step which is missing from Burns et al. - namely, performing the diffusion heat treating step with the gas being injected at a workpiece center location. Thus, Applicants submit that the Examiner has not made out a *prima facie* case of obviousness.

The rejection of record lacks any statement as to where the missing claimed subject matter can be found in the prior art and what would motivate one of ordinary skill in the art to modify Burns et al. so that the gas is injected at the workpiece center location. Certainly, Burns et al. makes no such suggestion. As stated in MPEP 2142,

"[t]o establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference Finally, the prior art reference ... must teach or suggest all the claim limitations."

The Examiner has not complied with these requirements and thus has failed to make out the required *prima facie* case of obviousness.

The initial burden is on the examiner to provide some suggestion of the desirability of doing what the inventor has done. "To support the conclusion that the claimed invention is directed to obvious subject matter, either the references must expressly or impliedly suggest the claimed invention or the examiner must present a convincing line of reasoning as to why the artisan would have found the claimed invention to have been obvious in light of the teachings of the references." *Ex parte Clapp*, 227 USPQ 972, 973 (BPAI 1985). The Examiner in this instance has not pointed out where the missing subject matter is suggested in any piece of prior art and has not presented any line of reasoning as to why the artisan would have found the claimed invention to have been obvious *in light of the teachings of Burns et al.*

The mere fact that a reference can be modified does not render the modification obvious unless the prior art suggests the

desirability of the modification. See *In re Mills*, 916 F.2d 680 682, 15 USPQ2d 1430, 1432 (Fed. Cir. 1990).

It should also be noted that the level of skill in the art cannot be relied upon to provide the suggestion to modify a reference. See *Al-Site Corp. v. VSI Int'l Inc.*, 174 F.3d 1308, 50 USPQ2d 1161 (Fed. Cir. 1999). Also see MPEP 2143.01. Thus, the Examiner's reliance on his conclusory statement about cleaning workpieces is misplaced and does not form a basis for providing the required suggestion.

To establish *prima facie* obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art. *In re Royka*, 492 F.2d 981, 180 USPQ 580 (CCPA 1974). Also see MPEP 2143.03. As noted above, not all of the limitations of claim 15 are taught or suggested in the cited prior art.

For these reasons, the rejection of claim 15 on obviousness grounds fails and should be withdrawn.

Claims 16 - 23 are allowable for the same reasons as claim 15 as well as on their own accord. For example, Burns et al. does not teach the diffusion heat treatment temperature of claim 16. It is entirely silent on the subject. Still further, Burns et al. does not teach or suggest the gas flow rate of claim 17; the partial pressure of claim 18; the gas flow rate of claim 19; the step of injecting an inert gas into said workpiece center location of claim 21; the step of injecting argon into said workpiece center location

of claim 22; and the step of injecting a reducing gas into said workpiece center location of claim 23.

The rejection of claims 15 - 23 is further defective because the Examiner has not made out a *prima facie* case of obviousness for the reasons previously discussed. The Examiner does not make any statement as to what would motivate one of ordinary skill in the art to modify Burns et al. to perform any of the method steps set forth in claims 16 - 23. The Examiner does not even make an effort to address each of the claims and the limitations contained therein. Nor does the Examiner even make an effort to provide any statement as to why one of ordinary skill in the art would be motivated to modify Burns et al. to perform the method steps set forth in claims 16 - 23.

The Examiner's comment about the gas flow rate is duly noted; however, claim 19, which is directed to the gas flow rate, depends from claim 17 and thus incorporates same. The rejection made by the Examiner does not even begin to talk about the step of "injecting said gas into said workpiece center location at a rate sufficient to carry away contaminants in said workpiece but less than a rate which a door to said furnace is caused to open." Nowhere does the Examiner address where this method step is taught or suggested in the cited prior art. He can't because it is not taught or suggested by Burns et al.

With respect to the rejection of claims 1 - 14, 28, and 29 on obviousness grounds, the foregoing comments about Burns et al. and its deficiencies are equally applicable here. Still further, while Burns et al. talks about cleaning, it does not teach or suggest a cleaning step which comprises "injecting a gas at a workpiece center location and applying heat."

The secondary references applied by the Examiner do not cure the deficiencies of Burns et al. Japanese patent document 62139810 relates to a method and apparatus for cleaning the inside of a tempering furnace. It does not teach or suggest any cleaning method comprising injecting a gas at a workpiece center location and applying heat. It most certainly does not teach or suggest a diffusion heat treatment of a workpiece where gas is being injected at the workpiece center location. Thus, even if this reference were somehow properly combinable with Burns et al., there is nothing which teaches or suggests the invention as claimed in claim 1.

Japanese patent document 2003027209 relates to a surface hardening treatment method, i.e. carbonization, of the inner holes of steel products. With respect to cleaning, the English abstract only says that the gas transport pipe and fixing appliance are cleaned and dried and then installed in the prescribed positions in the heating space. The fact that this reference says that the pipe and appliance are cleaned and dried *and then installed* in the prescribed positions demonstrates that it does not teach or suggest

the claimed invention. There is absolutely nothing in this document which teaches performing a furnace cleaning step by injecting a gas at a workpiece center location and applying heat. In fact, the reference does not talk about cleaning the furnace at all. Thus, this patent document also fails to teach or suggest a cleaning method comprising injecting a gas at a workpiece center location and applying heat and diffusion heat treating the at least one workpiece in a gas atmosphere with the gas being injected at the workpiece center location. It should also be noted that nowhere in the cited document does it say that the gas is injected at the workpiece center location. The gas is clearly injected into the interior of the workpiece, but there is no disclosure, teaching, or suggestion that the gas is injected at the workpiece center location. Thus, even if this reference were properly combinable with Burns et al., there still is no teaching of the subject matter of claim 1.

Again, it is submitted that the Examiner has not made a *prima facie* case of obviousness and the rejection of claim 1 should be withdrawn. Since none of the references teaches or suggests the claimed cleaning and diffusion heat treating steps, the subject matter of claim 1 is neither taught nor suggested by the proposed combination of references. Therefore, claim 1 is allowable. As stated above, to establish a *prima facie* case of obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art.

Claims 2 - 13 are allowable for the same reasons as claim 1 and further on their own accord. For example, none of the cited and applied references teach or suggest the flow rate of claim 2; the partial pressure of claim 3; the gas flow rate of claims 4 and 11; the diffusion heat treatment temperature range of claim 8; and/or the injecting steps of claims 9 and 10. The Examiner does not even address in the rejection where the subject matter of claims 2 - 13 can be found in the cited and applied references. The rejection is an impermissible shotgun rejection and fatally flawed.

With respect to claim 28, none of the cited and applied references teach or suggest providing a manifold within a chamber of the furnace. Thus, none of the cited and applied references could possibly teach or suggest the subject matter of claim 28.

As for claim 29, the Examiner ignores the fact that there is no disclosure that the furnace in Japanese patent document no. 62139810 is used for a diffusion heat treatment. Given this fact, how is it possible that this reference could teach heating the furnace to a temperature which is 200 to 300 degrees Fahrenheit greater than a temperature at which the diffusion heat treating step is being performed? The answer is that it is not possible. The reference is totally silent on this subject and could not provide the requisite suggestion or motivation necessary to modify Burns et al. because it performs a tempering process, not a diffusion heat treatment process.

With respect to the Examiner's comments on page 4 of the office action about the teachings of JP 200327209, the Examiner is requested to read the reference again and understand that the drawing in this reference is not a blueprint. There is no written disclosure that the gas is transported to the center of the workpiece. This is just speculation on the part of the Examiner based on a drawing which is not to scale.

With respect to the Examiner's comments about Burns et al. in the paragraph bridging pages 4 and 5 of the office action, Burns et al. teaches that as part of an ionized gas stream cleaning process, one would cause a gas to flow into a vacuum chamber. There is absolutely nothing in Burns which teaches performing a diffusion heat treating step with the gas being injected at a workpiece center location. Undoubtedly a turbine blade has a center, but this is not a teaching of what is being claimed. As for the Examiner's comment about the lack of factual evidence that injecting gas only at workpiece center location possesses unexpected results, the comment evidence a lack of understanding of the relevant law of obviousness. First, applicants need not show unexpected results until such time as the Examiner has made a *prima facie* case of obviousness, which the Examiner has not done. Second, the whole premise of this case is that one gets an improved result from injecting gas at the workpiece center location. Thus, Applicants have already provided evidence of an unexpected result obtained in an unexpected way.

With regard to the first full paragraph on page 5 of the office action, the temperature in column 3, lines 33 - 40 is a cleaning temperature, not a diffusion heat treatment temperature.

With respect to the Examiner's comments in the second full paragraph on page 5 of the office action, the Examiner still has not pointed out where all the features set forth in the claim can be found in the reference(s). As for the unexpected results argument, please see the above comments concerning same. They are equally applicable here.

With respect to the Examiner's argument in the third full paragraph on page 5 of the office action, Applicants do not have to show criticality until such time as the Examiner has made out a *prima facie* case of obviousness. Since the Examiner has not done that for the reasons stated above, the Examiner's comments are not relevant and neither is the *Boesch* case.

For the foregoing reasons, the instant application is believed to be in condition for allowance. Such allowance is respectfully solicited.

A notice of appeal is appended hereto in the event that the Examiner maintains the rejections of record. The Director is hereby authorized to charge the notice of appeal fee of \$500.00 to Deposit Account No. 21-0279.

Should the Examiner believe an additional amendment is needed to place the case in condition for allowance, he is hereby invited

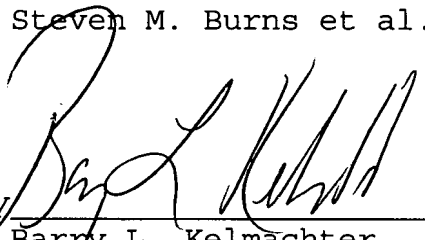
to contact Applicants' attorney at the telephone number listed below.

Should the Director determine that an additional fee is due, he is hereby authorized to charge said fee to said Deposit Account.

Respectfully submitted,

Steven M. Burns et al.

By


Barry L. Kelmächter
BACHMAN & LaPOINTE, P.C.
Reg. No. 29,999
Attorney for Applicants

Telephone: (203) 777-6628 ext. 112

Telefax: (203) 865-0297

Email: docket@bachlap.com

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I, Karen M. Gill, hereby certify that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to: "Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313" on April 20, 2007.

